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10/590,016	08/21/2006	Tetsuya Matsuda	IRD-0018	6725

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EXAMINER	
RIGGS II, LARRY D	

ART UNIT	PAPER NUMBER
1631	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/590,016	MATSUDA ET AL.	
	Examiner	Art Unit	
	LARRY D. RIGGS II	1631	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *21 September 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-15* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8/7/2009, 11/30/2009 and 6/28/2010*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Applicant's preliminary amendments filed 9/21/2009 are acknowledged and entered.

Information Disclosure Statement

The information disclosure statements filed 8/7/2009, 11/30/2009 and 6/28/2010 are acknowledged. Signed copies of the corresponding 1449 forms have been included with this Office action.

Priority

Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). Receipt is acknowledged of papers submitted on 8/21/2006, under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Status of Claims

Claims 1-15 are currently pending and under consideration.

Withdrawn Rejections/Objections

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Claims 1-5 and 7-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Keane (US 6,381,562) in view of Rudy (US 4,862,347) and further in view of Dolidon et al. (US 5,408,623).

The instant claims are drawn to an organism simulation device and system comprising: two or more different simulator parts that calculate the behavior of an organism's structural elements, comprising: Simulator Parts, comprising: Input Data Reception Unit, Calculation Unit, Output Data Output Unit; a Simulation Controller, comprising: Simulation Scenario Information Storage Unit, Simulation Scenario Information Input Reception Unit, Data Reception Unit, Input Data Transfer Unit, Output Data Transfer Unit; and a Data Output Part, comprising: Output Data Reception Unit, Output Unit.

Regarding claims 1, 2 and 15, Keane shows an apparatus, method and program that simulates the behavior of a bio-transport system configured for a specific organ, tissue or cell model, (column 4, first paragraph; column 6, last paragraph). Keane shows a user interface, input/output components, CPU, memory containing numerous models, storage database, output display, (Column 7, lines 3-22; Column 8, lines 15-61; column 13, second paragraph; Figures 1-3). Keane shows receiving and transmitting data between components of the apparatus, (column 13, lines 19-39). Keane teaches simulators in parallel with processors in parallel or in different computers, wherein blocks (step of the simulator) pass information to respective organ models residing either on the same computer using a parallel CPU, or on a server computer on a network, a different block initiates independent processing tasks and initiates a local task to

collect the returning data from various independent organ models, wherein the data is stored, (column 30, lines 27-56; Figure 2). Keane teaches where organ characteristics are stored for future use in the bio-transport system simulator, (column 30, lines 54-56). Keane teaches storing information related to the models and sequences of the models for the simulation, (column 8, lines 59-67; column 9, lines 54-61). Keane teaches a configurable simulation model providing a generic framework that is readily customizable to simulate one or more bio-transport dynamics of a user-defined bio-transport system as a function of both time and position within the system, (column 3, lines 1-6) and an input of correction for a simulation, (column 19, lines 45-58).

Keane does not show input data transfer unit, output data transfer unit, input data reception unit and output data reception unit.

Rudy shows an apparatus for simulating memory devices in a logic simulation machine having input/output (I/O) sources, including a simulator (simulation controller) containing an input data permutation unit (input data transfer unit), execution unit, simulation profile memory and output data permutation unit (output data transfer unit), (abstract, Figures 1 and 2).

Keane and Rudy do not show input/output data reception units.

Dolidon et al. shows a data processing system containing processors with a plurality of micro-programmed execution units connected with one another with a memory by way of a cache memory, (abstract; Figure 1). Dolidon et al. shows input/output units with buffers (reception units) (Figures 2 and 3).

Regarding claim 3, Keane shows an automatic input of data from experimental and diagnostic tools, (column 9, lines 23-44). It would be obvious that an input data obtaining unit would be used to automatically input data for simulation. The remaining wherein clause is merely intended use. All elements of the apparatus are met above.

Regarding claim 4, Dolidon et al. shows input/output units with buffers (reception units) (Figures 2 and 3). Dolidon et al. shows numerous buffers linked to input/output, processor, calculation units and a cache memory, (Figures 1-3) thereby suggesting input/output data reception portions and input data retrieving portion.

Regarding claim 5, Keane teaches simulators in parallel with processors in parallel or in different computers, wherein blocks (step of the simulator) pass information to respective organ models residing either on the same computer using a parallel CPU, or on a server computer on a network, a different block initiates independent processing tasks and initiates a local task to collect the returning data from various independent organ models, wherein the data is stored, (column 30, lines 27-56; Figure 2). Keane teaches where organ characteristics are stored for future use in the bio-transport system simulator, (column 30, lines 54-56). Keane teaches storing information related to the models and sequences of the models for the simulation, (column 8, lines 59-67; column 9, lines 54-61). Rudy shows an input data permutation unit, a simulation profile memory and real memory within the memory simulator, and teaches processors in parallel that are orchestrated and integrated by means of a control

unit, (column 1, lines 36-42; figure 2). Rudy teaches instruction sets executed on the finite state machine (FSM) that simulates at lest on memory array, to simulate access to the memory array, using associated memory access signals to establish the memory reference parameters of respective simulated operations, (column 2, lines 10-30).

Regarding claim 7, Keane teaches transmitting and receiving data between two processes on a computer, multiple computers and remote servers, is well known, (column 13, lines 19-39), suggesting the source and destination of simulated data is known. Keane teaches a user inputting information and commanding the execution of a simulator, (column 7, lines 4-16; column 8, lines 65-67).

Regarding claims 8-14, the instant claims are drawn to an organism simulation program that mirrors the instant apparatus claims 1-7. Keane shows a computer readable medium of instructions for enabling the system described to construct and/or execute the simulation described above, (column 7, lines 19-21).

It would have been obvious to one skilled in the art at the time of invention to combine Keane with Rudy and Dolidon et al., because each of the elements are known in the art, the art is in the same technology, i.e. simulators (calculation units). One of ordinary skill would have recognized that the results of the combination were predictable, because Keane executes blocks of the simulator that input data, calculate (compute) values and output the result of the calculations, Figure 2), Likewise Rudy and Dolidon et al. teach data input,

execution of calculations and outputting the resulting values, (Rudy, Figure 2), and (Dolidon et al., Figure 1), thus all use data processing systems and methods for simulations or calculations, and are combinable.

Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Keane (US 6,381,562) in view of Rudy (US 4,862,347) and further in view of Dolidon et al. (US 5,408,623) as applied to claims 1-5 and 7-15 above, and further in view of Chosack et al. (US 6,857,878).

The instant claim 6 depends from claim 1 with the extra limitation that one simulator part performs a simulation of a single myocardial cell, and another simulator part calculates a deformation of an organ.

Keane, Rudy and Dolidon et al. are applied to claims 1-5 and 7-15 above.

Keane teaches simulation of any single cell with E-CELL simulator, (column 6, lines 45-60), suggesting simulation of a myocardial cell.

Keane, Rudy and Dolidon et al. do not teach calculating a deformation of an organ.

Chosack et al. teaches calculation of a deformation of an organ by the deformation in a mathematical model corresponding to a deformation in the simulated organ, (column 3, lines 24-33; column 9, lines 64-67).

It would have been obvious to one of ordinary skill in the art at the time of the instant invention to modify the configurable bio-transport system simulator by Keane with the simulation of organ deformation by Chosack et al. wherein one

skilled in the art would have been motivated to combine the organ deformation simulation because Chosack et al. that simulation of organ deformation solves a number of problems in the art of medical simulation, in particular gastro-endoscopy, and allows realistic visual feedback response for the user, (column 9, lines 56-67).

Response to Arguments

Applicant's arguments filed 9/21/2009 have been fully considered but they are not persuasive.

Applicants argue that the cited art does not teach or suggest a simulation scenario information input reception unit that receives an input of correction for customizing the simulation scenario information". Applicants argue that Keane provides no means for customizing the simulation scenario. Applicants argue that Rudy fails to teach or suggest storing "the simulation scenario information" which is information on a flow of data between the two or more simulator parts and the data output part, and an operation sequence.

In regard to applicants' argument that the cited art does not teach an input of correction for customizing the simulation scenario information or means for customizing the simulation scenario, Keane teaches a customizable simulator and input of a correction factor, (column 3, lines 1-6; column 19, lines 45-58). In regard to applicants' argument that Rudy fails to teach or suggest storing "the simulation scenario information", i.e. information on a flow of data between the two or more simulator parts and the data output part, and an operation sequence, Keane teaches simulators in parallel with processors in parallel or in different

computers, wherein blocks (step of the simulator) pass information to respective organ models residing either on the same computer using a parallel CPU, or on a server computer on a network, a different block initiates independent processing tasks to collect the returning data from various independent organ models, storing the resulting data, (column 30, lines 27-56; Figure 2). Keane teaches storing information related to the models and sequences of the models for the simulation, (column 8, lines 59-67; column 9, lines 54-61).

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LARRY D. RIGGS II whose telephone number is (571)270-3062. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, ALT. Friday, EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Marjorie Moran can be reached on 571-272-0720. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/LDR/
Larry Riggs
Examiner, Art Unit 1631

/Marjorie Moran/
Supervisory Patent Examiner, Art Unit 1631